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German Patent Application No. 102 47 021.9
Applicant: HO, Wen-Chih
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Our ref.: L38743 AL/Sg/sb

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German Patent and Trademark Office dated April 8, 2003
(received on April 22, 2003)

In this Official Action, the following references are cited for the first time (the numbering will be adhered to in the further proceedings):

D1) US 2002/0085601 A1

D2) DE 196 38 667 A1

The examination is based on the documents as originally filed on October 9, 2002, and particularly claims 1 to 11.

Now valid claim 1 is unclear in certain points. It is unclear, how a light-mixing layer can absorb a light source.

Furthermore, it is unclear what the difference is between light-scattering particles and diffuser particles. The effect of diffuser particles is after all based on the scattering of light, thus, also diffuser particles are light-scattering particles. The application does not give any hint how these particles differ, as in particular in the case of SiO_2, and even the material is the same (see also claim 3: "quartz, glass" together with claim 4: "SiO_x"). At best, there might be a difference in particle size. However, no specification is given about that.

Likewise, it is unclear what an arrangement "in a particle-interlaced order" is.

These unclarities have to be eliminated first, before a sensible examination is possible.

With regard to the prior art, document D1 should be mentioned. D1 shows a light-mixing layer (see Fig. 3 in connection with the description) having fluorescent material particles (312) and SiO_2 particles with radii between 50 and 1000 nm in an epoxy resin matrix (39) (see para 42). In D1, the SiO_2 particles are described as light-scattering particles. Furthermore, the SiO_2 particles act as diffuser particles, mentioned in D1, col. 11, lines 12 to 24. Thus, all particles that are claimed in claim 1 are included. Comparing Fig. 3b of D1 and Fig. 6 of the present application, also no significant difference can be recognized concerning the arrangement of the single particles. Thus, the Examining Division believes that the subject matter of the application is disclosed novelty-destroying in document D1.

Concerning the methods as claimed in claim 2, most of these are unclear (e.g. SPIN, evaporation, inertial force, pressure). The others do not make sense (cladding, sputtering, condensation). As these methods are not described in the application, they might be usual methods, thus not giving reasons for patentability.

The features of claims 3 and 4 are known from D1 (SiO_2 particles).

With regard to claim 5, the Examining Division assumes that the terms "phosphor particles" and "phosphor matter" are bad translations. The German term is "fluorescent material". Also in D1, organic fluorescent materials are used (see e.g. claim 7).

With regard to claims 6 to 8, see the above statements referring to claim 2.

The second independent claim 9 has the same unclarities as claim 1. Since the light source in D1 is an LED having the features as claimed in claim 9, the subject matter of claim 9 has to be judged like the one of claim 1.

Claim 10 is unclear, as the light emitted by the LED chip obviously seems to be absorbed and reflected at the same time. This is not possible. By the way, for this see Fig. 3a of D1.

Claim 11 rephrases the subject matter of claim 1 as a method claim and therefore has to be judged like claim 1.

Altogether, it is not clear to the Examining Division what the invention actually is. What can be seen from the application is essentially anticipated by D1. According to these facts, the grant of a patent cannot be promised. Rather, the rejection of the application has to be expected.

Examining Division for Class H 01 L
(Signature)